



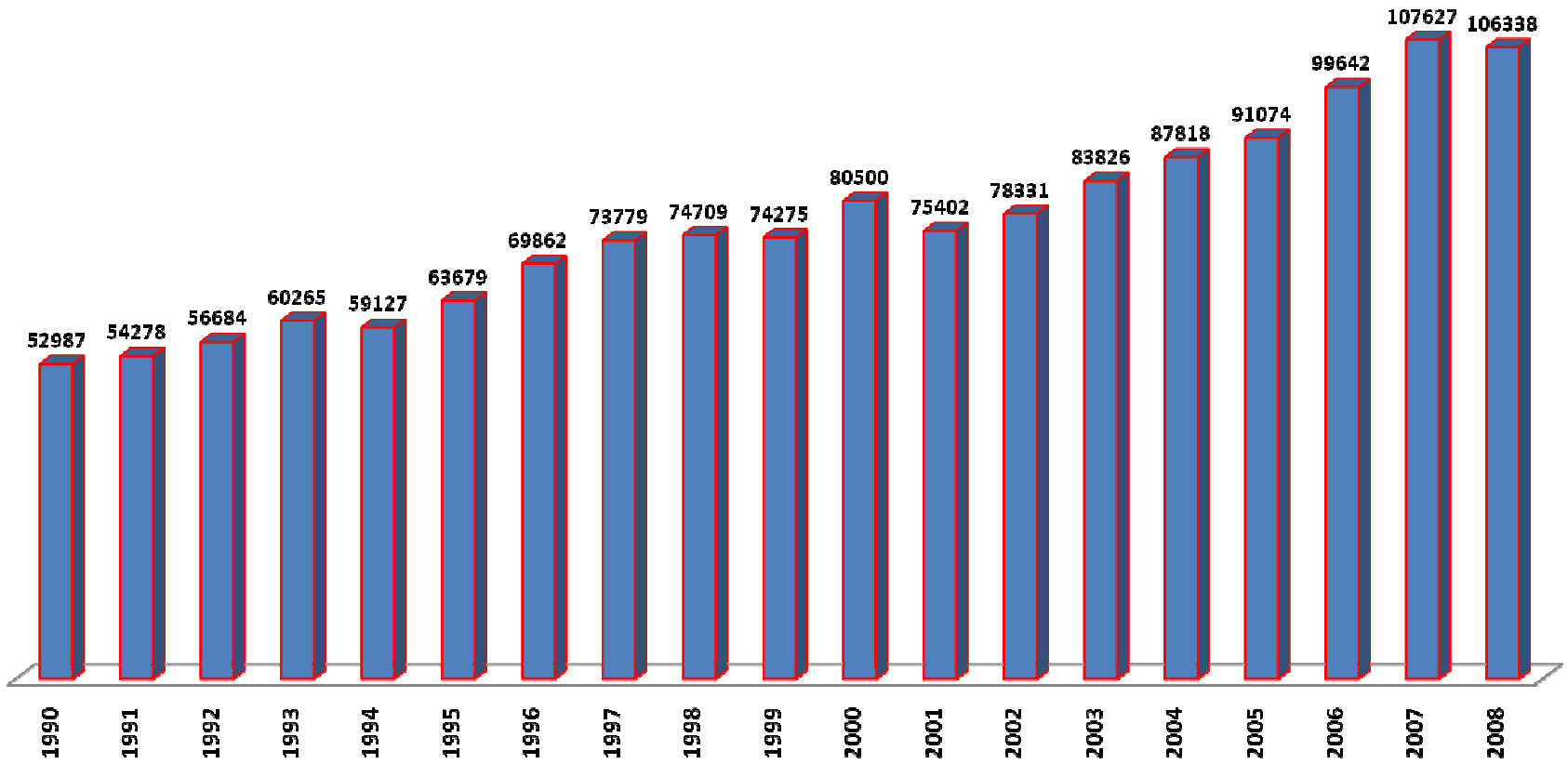
“Turkey’s role as an energy bridge between the Caspian and Middle –East regions to Europe”

**Yusuf YAZAR**  
**Deputy Undersecretary**  
**Ministry of Energy and Natural Resources**

**19 October 2010**

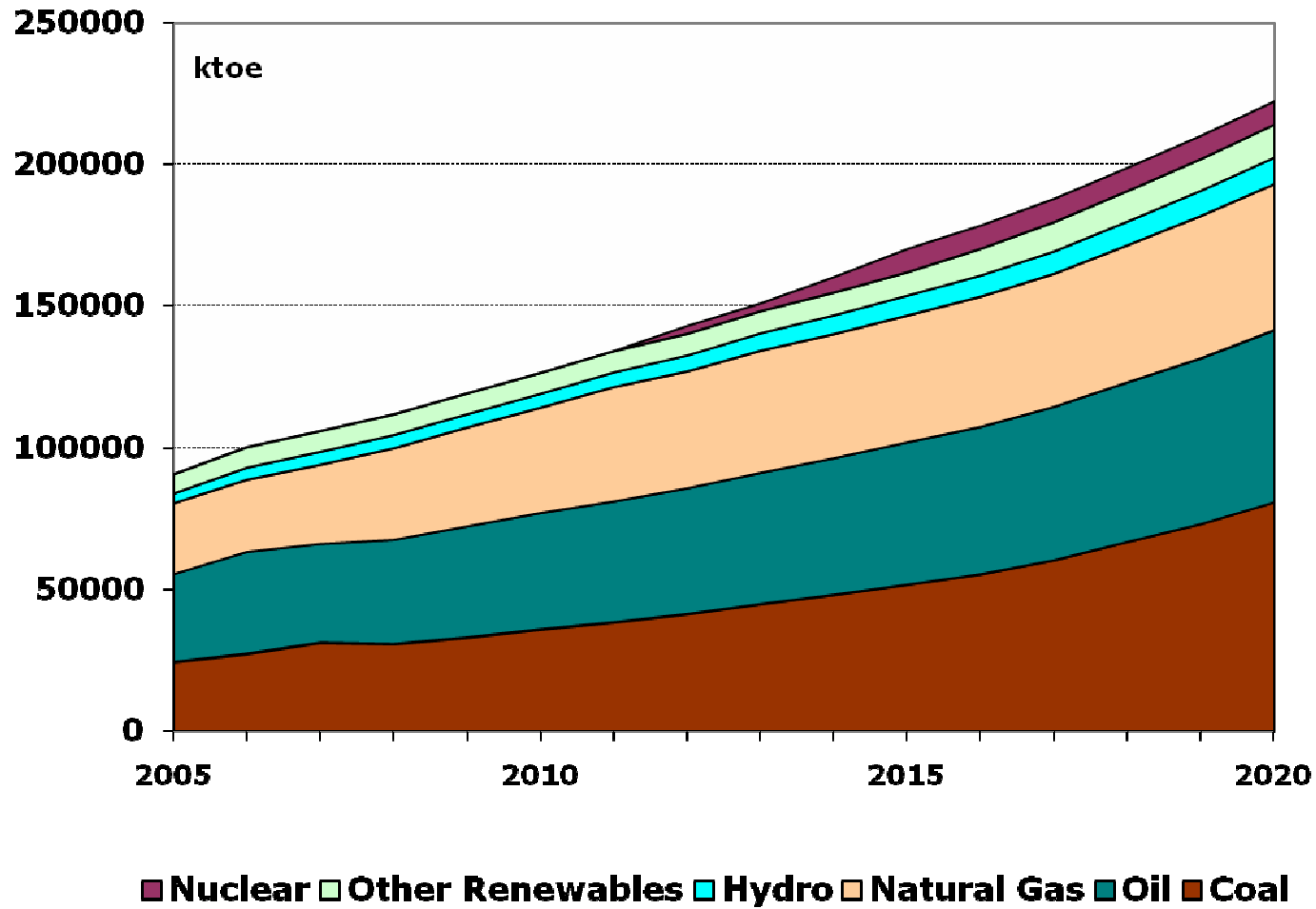
## Total Primary Energy Supply (ktoe)

■ Total Primary Energy Supply



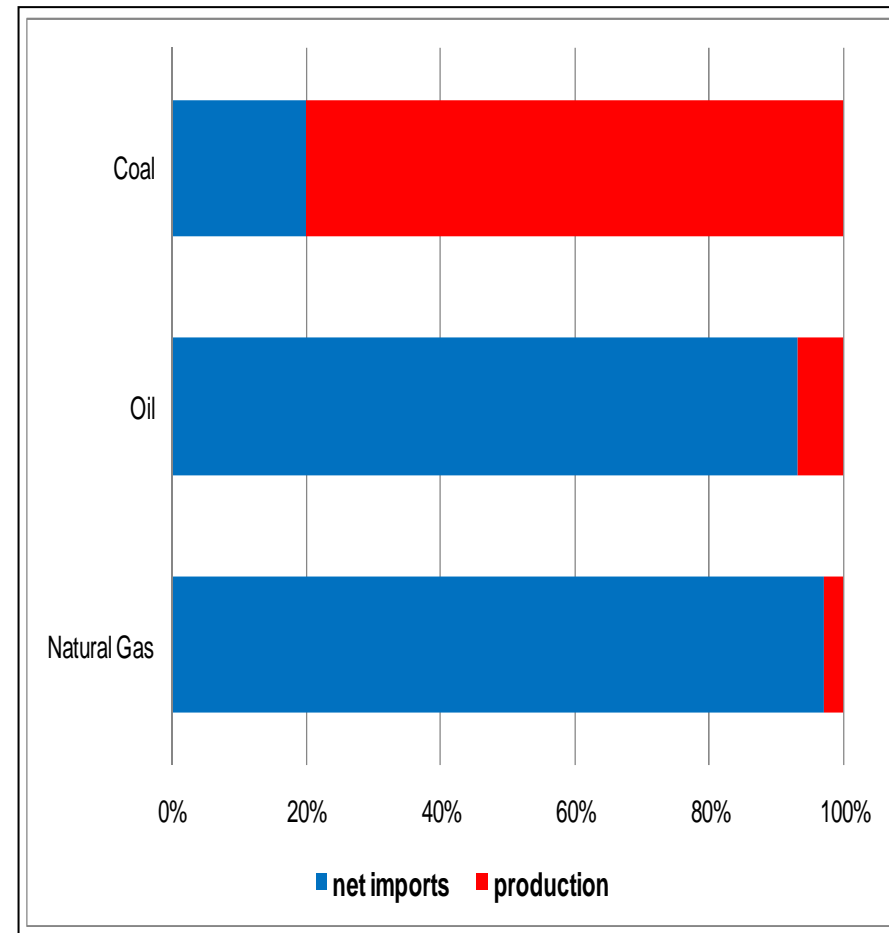
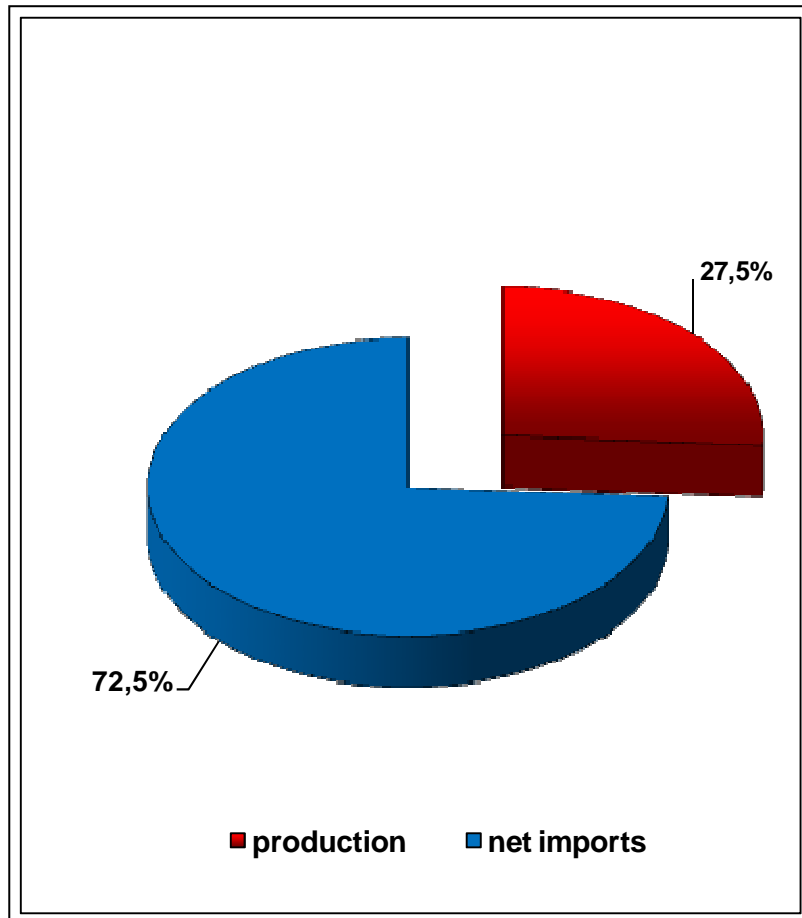
# Demand for Primary Energy

**“Reference Scenario : 110 % increase until 2020”**



# Import Dependency

“Relative Insufficiency of Indigenous Resources as compared to the Growing Energy Demand”

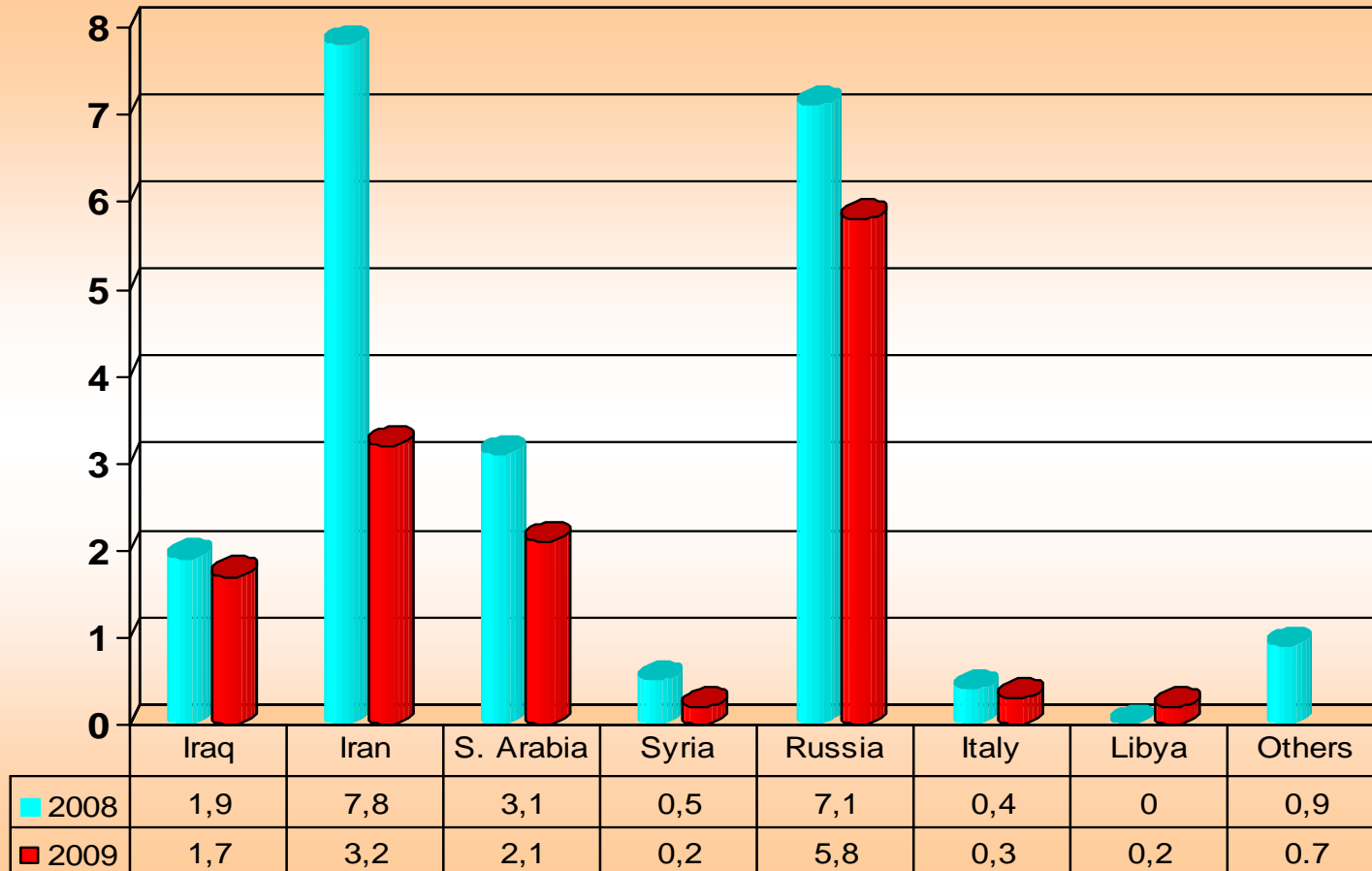


Figures are for year 2008.

## Natural Gas Supply Contracts

EXISTING CONTRACTS	QUANTITY (PLATEAU) (BCM/YEAR)	DATE OF SIGNATURE	DURATION (YEAR)	OPERATION DATE
RUSSIAN FED. (WEST)	6	FEBRUARY, 1986	25	JUNE 1987
ALGERIA (LNG)	4	APRIL, 1988	20	AUGUST 1994
NIGERIA (LNG)	1.2	NOVEMBER, 1995	22	NOVEMBER 1999
IRAN	10	AUGUST, 1996	25	DECEMBER 2001
RUSSIAN FED. (BLACK SEA)	16	DECEMBER, 1997	25	FEBRUARY 2003
RUSSIAN FED. (WEST) TURUSGAZ	8	FEBRUARY, 1998	23	MARCH 1998
TURKMENISTAN	16	MAY, 1999	30	-
AZERBAIJAN	6.6	MARCH, 2001	15	2007

## DIVERSIFICATION OF CRUDE OIL IMPORTS



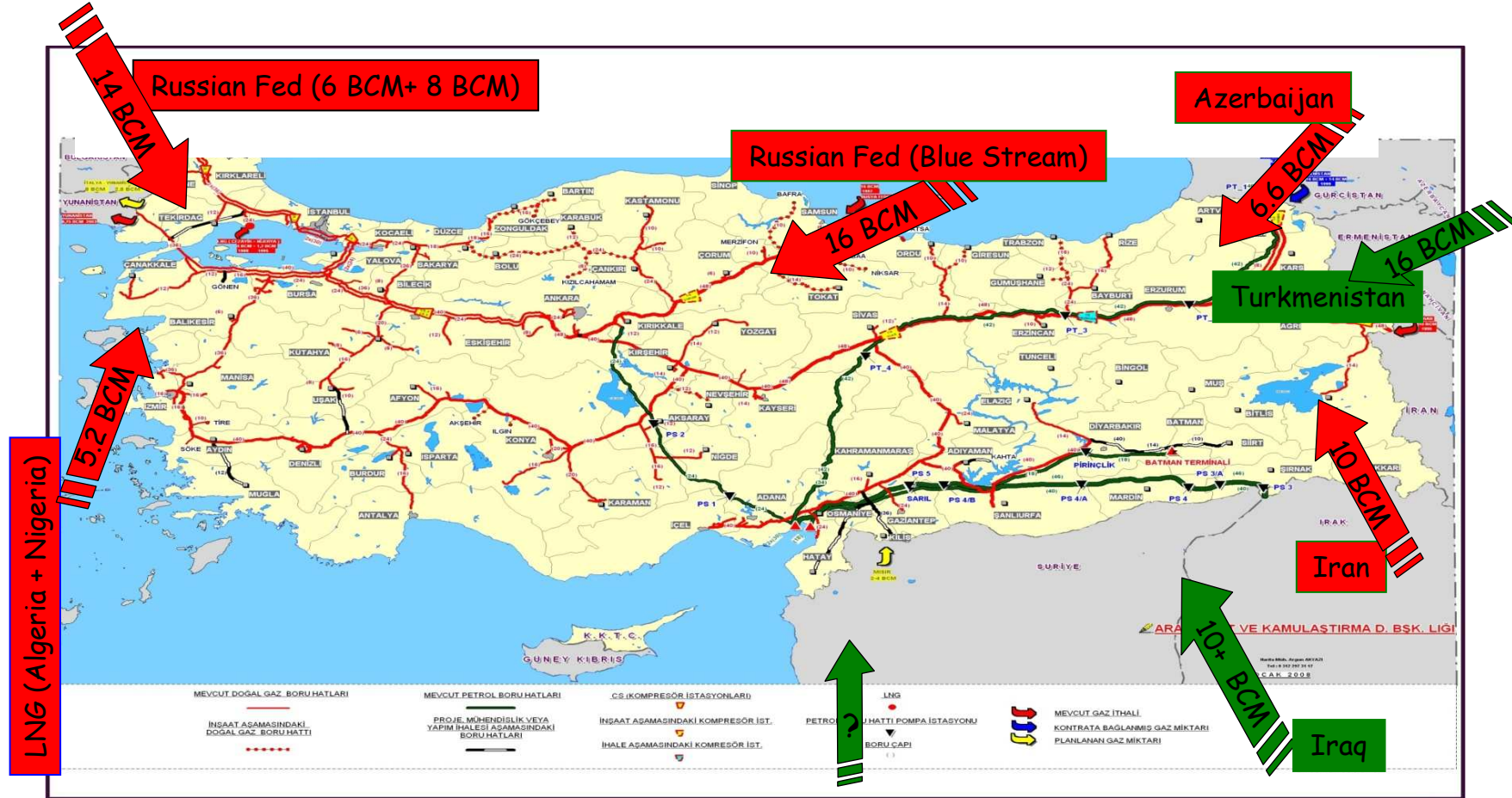
Turkey imported 14,2 Million tones of crude oil in 2009. Crude oil came mainly from Russia (40%), Iran (23%), and S. Arabia (15%)

# Major Policy Developments

## “Legislative Framework

- 2001
  - Electricity Market Law (No:4628)
  - Natural Gas Market Law (No:4646)
- 2003
  - Petroleum Market Law (No:5015)
- 2004
  - Strategy Paper as Road Map of the Market Reform & Transition
- 2005
  - LPG Market Law (No: 5307)
- 2005
  - Law on Utilization of Renewables in Electricity Generation
- 2007
  - Energy Efficiency Law (No:5627)
    - Amendments to the Law on Utilization of Renewables in Electricity Generation
- 2007
  - Geothermal Law (No:5686)
- 2007
  - Nuclear Investments Law (No:5710)
- 2008
  - Significant Amendments to the Electricity Market Law (No:5784)
- 2009
  - Strategy Paper on Electricity Market & Security of Supply Draft Amendments to the Law on Utilization of Renewables in Electricity Generation

# Natural Gas Pipeline System & Supply Contracts



➔ Existing Imports (Plateau Period)

➔ Planned/Hanging Gas Contracts



## Crude Oil Pipelines



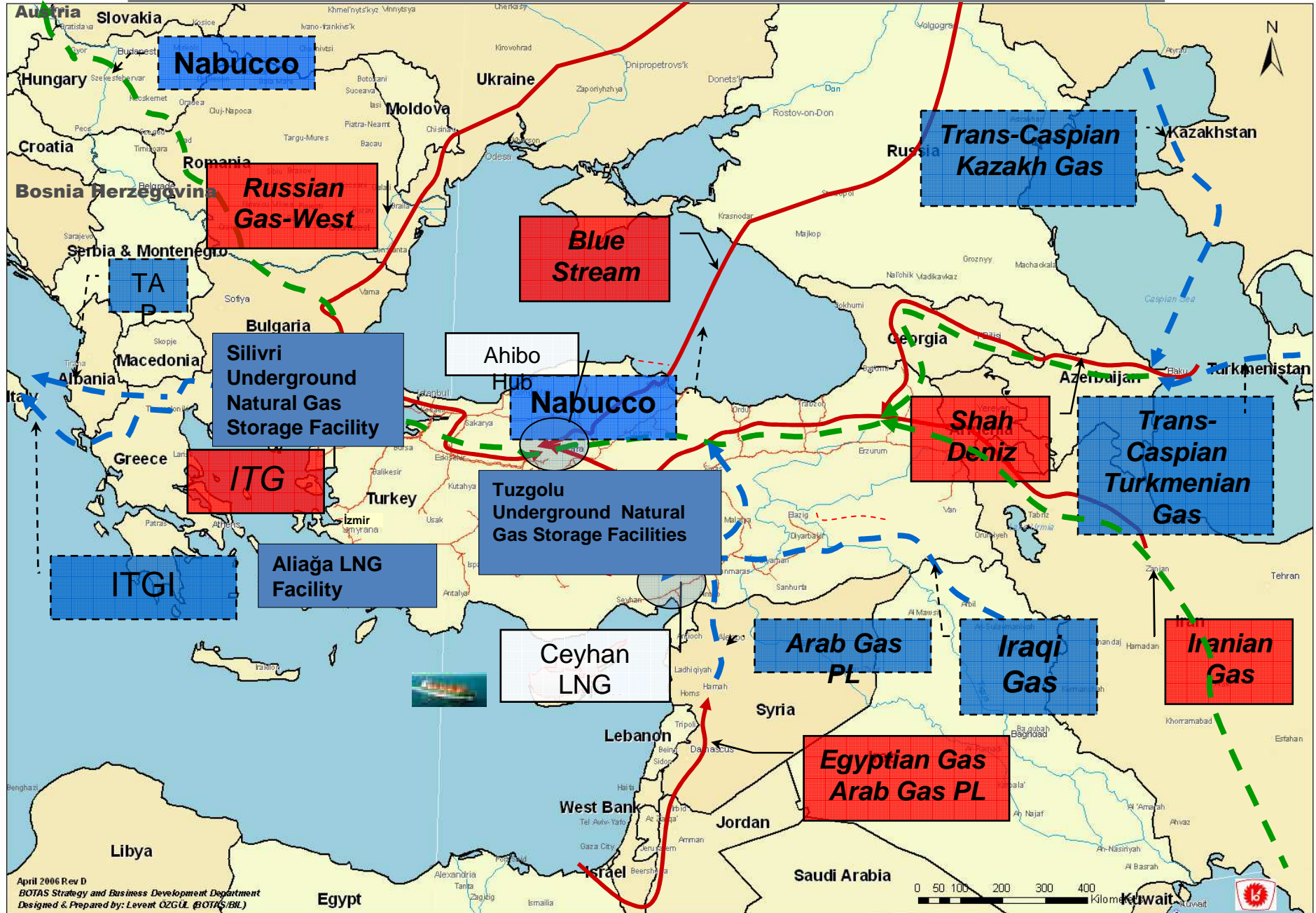
A :	I. KERKUK-CEYHAN CRUDE OIL PL	40"	641 KM	} 71 MTA CAPACITY
B :	II. KERKUK-CEYHAN CRUDE OIL PL	46"	656 KM	
C :	BAKU TBILISI CEYHAN CRUDE OIL PL	30"-42"-46"	1076 KM	50 MTA CAPACITY
D :	SELMO-BATMAN CRUDE OIL PL	6"-9 5/8"-12"	41 KM	0.8 MTA CAPACITY
E :	BATMAN-DORTYOL CRUDE OIL PL	18"	511 KM	4.5 MTA CAPACITY
F :	CEYHAN-KIRIKKALE CRUDE OIL PL	24"	448 KM	7.2 MTA CAPACITY

# Oil and Gas Pipeline Projects

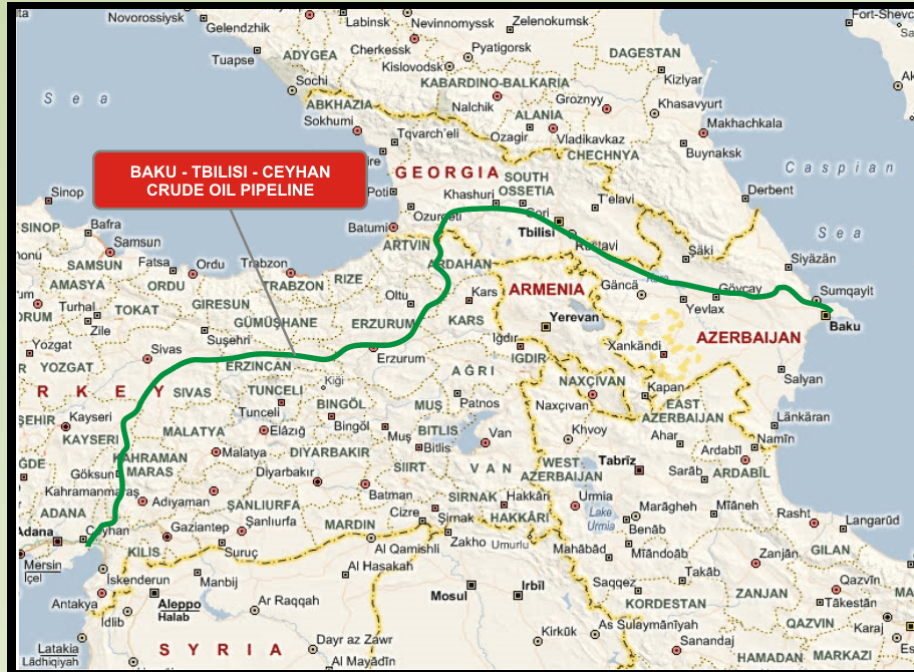
## “Turkey’s role in Energy Security”



# Turkey as an East-West Energy Corridor



## BAKU – TBILISI – CEYHAN CRUDE OIL PIPELINE

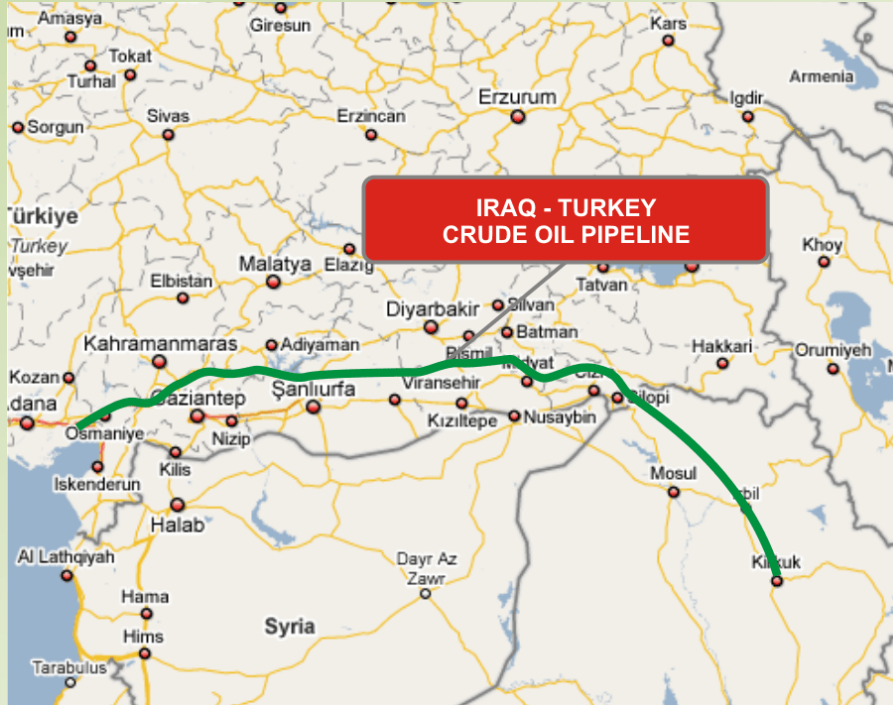


### **TECHNICAL FEATURES**

Total Length	1760 Km
Pipeline Diameter	46-42-34 Inch
Cur. Capacity	50 mtoa(1mdbl/day)

- In operation since May 2006
- 1st Tanker loaded on June 4th, 2006
- Provides app. 1,5% of world oil supply
- The capacity expansion to 1,2 mdbl/day, soon to 1,6 mdbl/day
- Kazakh oil flows through the BTC pipeline since late 2008
- Approx. 290 mdbl crude oil transported in 2009

## KIRKUK – CEYHAN CRUDE OIL PIPELINE



### **TECHNICAL FEATURES**

Total Length	986 Km
Pipeline Diameter	40-46 Inch
Max. Capacity	70,9 Mtoa

- In operation since 1976
- First tanker loaded on May 25th, 1977
- In 1984, capacity increased to 46,5 mtoa from 35 mtoa
- Capacity was further increased to 70,9 mtoa with a second parallel pipeline in 1987
- Approx. 168 mbbbl crude oil transported in 2009
- Amendment Agreement signed on 19 September 2010 in Baghdad
- The Amendment valid for 15 years with a 5 years expansion option

# The Istanbul Strait



## **The Istanbul Strait**

- **Length: 31 km**
- **Width: Varies from approx 700m to 1500m at different location**
- **The Strait presents exceptional difficulties, as the passing vessels have to change their course 12 times ,and in four places by more than 45 degree.**

# Implications for Istanbul Strait Congestion

## Annual, Monthly and Daily Average Vessels Statistics

Years	ISTANBUL				ÇANAĞKALE			
	# Vessels	# Vessels with hazardous cargo	Monthly Average	Daily Average	# Vessels	# Vessels with hazardous cargo	Monthly Average	Daily Average
1996	49,952	4,248	354	12	36,198	5,658	471	16
1997	50,942	4,303	359	12	36,543	6,043	504	17
1998	49,304	5,142	429	14	38,777	6,546	546	18
1999	47,906	5,504	479	16	40,582	7,266	605	20
2000	48,079	6,093	507	17	41,561	7,529	627	21
2001	42,637	6,516	543	18	39,249	7,064	588	19
2002	47,283	7,427	619	20	42,669	7,637	636	21
2003	46,939	8,107	675	23	42,648	8,114	676	22
2004	54,564	9,399	783	26	48,421	9,016	751	25
2005	54,794	10,027	836	28	49,077	8,813	734	24
2006	54,880	10,153	846	28	48,915	9,567	797	26
2007	56,606	10,054	838	28	49,913	9,271	773	25
2008	54,396	9,303	775	26	48,978	8,752	729	24
2009	51,422	9,299	775	25	49,453	9,567	797	26

## SAMSUN – CEYHAN CRUDE OIL PIPELINE PROJECT



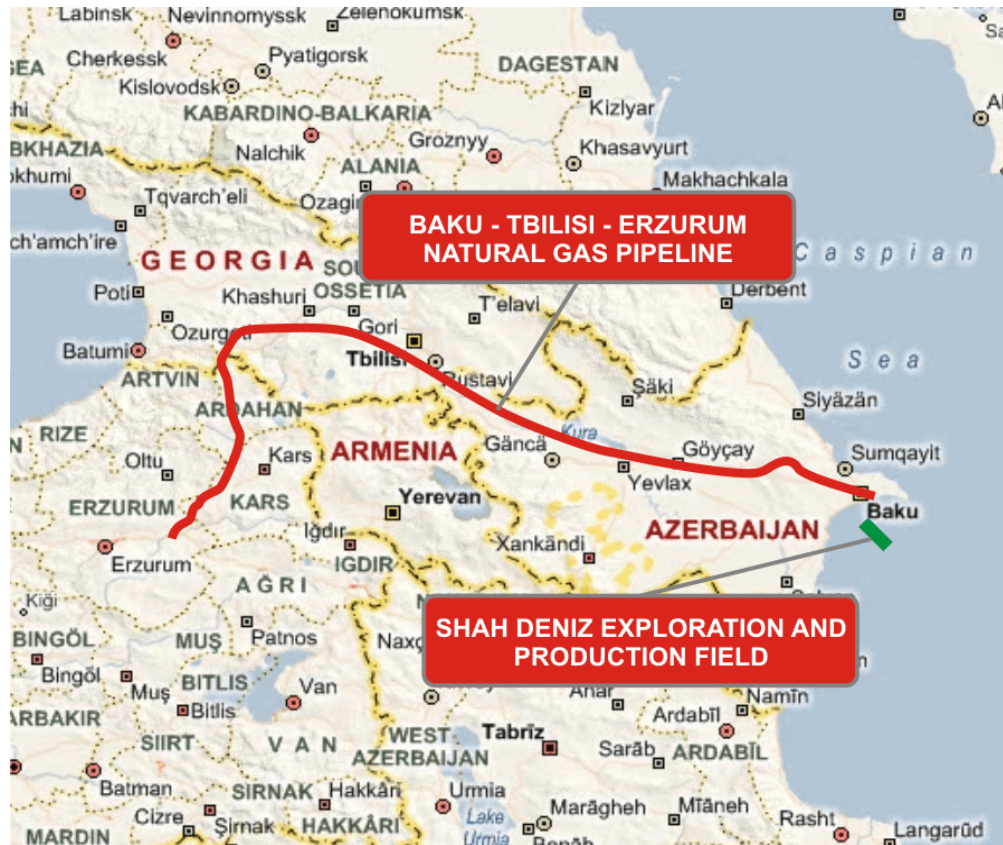
### **TECHNICAL FEATURES**

Max. Capacity	55 Mt/y
Total Length	551 Km
Pipeline Diameter	42-48 Inch

- Aims at decreasing the tanker traffic through the Turkish Straits
- Favorable loading conditions in Ceyhan
- Groundbreaking ceremony: 24 April 2007
- Protocol signed between Turkey and Russia on 6 August 2009 foresees throughput by the RF
- An agreement signed among Eni, Çalık, Transneft and Rosneft on 19 October 2009 in Milano regarding the realization of the pipeline.
- IGA Negotiations has been started on 24 September 2010 among Turkey Russia and Italy



# BAKU – TBILISI – ERZURUM GAS PIPELINE



SALE AND PURCHASE  
AGREEMENT FOR 6,6 bcm  
OF GAS WAS SIGNED ON  
12 MARCH 2001

IN OPERATION SINCE  
JULY 2007

IN 2008, 4.7 bcm  
IN 2009, 4,96 bcm  
IMPORTED (TOTAL ~6  
bcm)

IN 2014, 2nd PHASE OF  
SHAH DENIZ WILL BE  
OPERATIONAL

## **TECHNICAL FEATURES**

Total Length	915 Km
Pipeline Diameter	42 Inch
Max. Capacity	11 bcma

# TURKEY – GREECE – ITALY GAS PIPELINE PROJECT

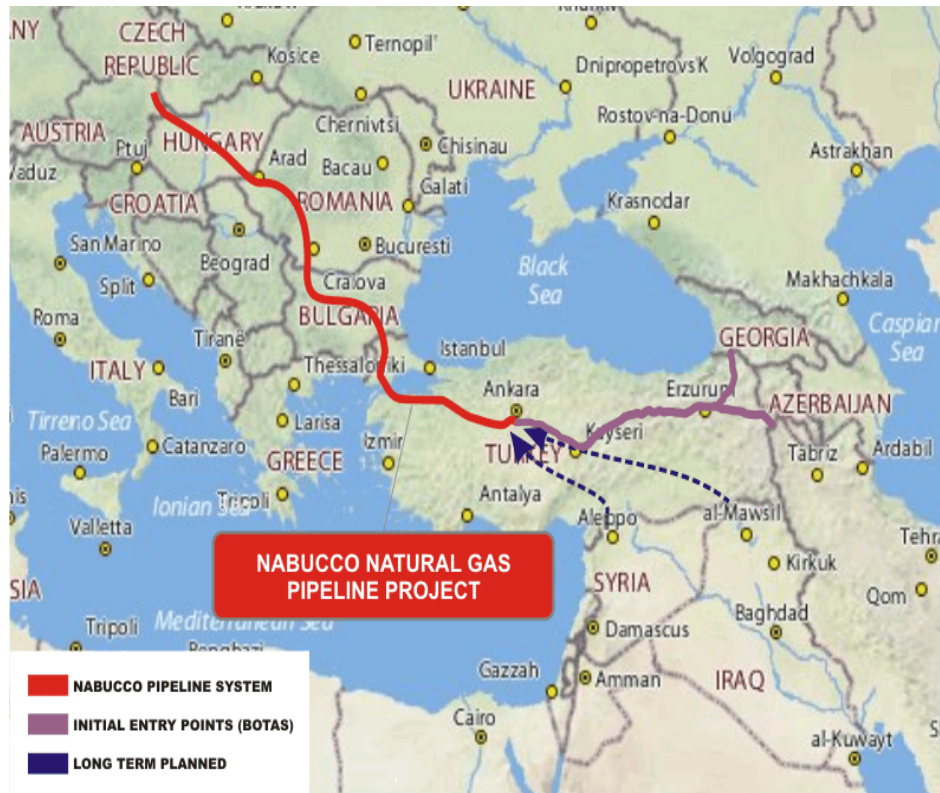


- ON NOVEMBER 18, 2007 GAS SUPPLY STARTED ON ITG
  - Construction completed late 2007
  - Natural Gas Sales and Purchase Agreement was signed on December 23, 2003 in Ankara, by Botas and Depa. Accordingly, delivery volume by the line will be 750 MCM to DEPA. The line is operational since late 2007.
  - BOTAS, DEPA and Edison are in cooperation for the project. Technical feasibility study is completed and studies are ongoing.
  - IGA signed on the 26<sup>th</sup> of July 2007 in Rome
  - Latest MoU signed by Botaş, Depa and Edison on the 17th of June 2010

## **TECHNICAL FEATURES**

ITG Length	296 Km
Total Length	808 Km
Pipeline Dia.	36 Inch
Max.Capacity	12 bcma

# NABUCCO GAS PIPELINE PROJECT

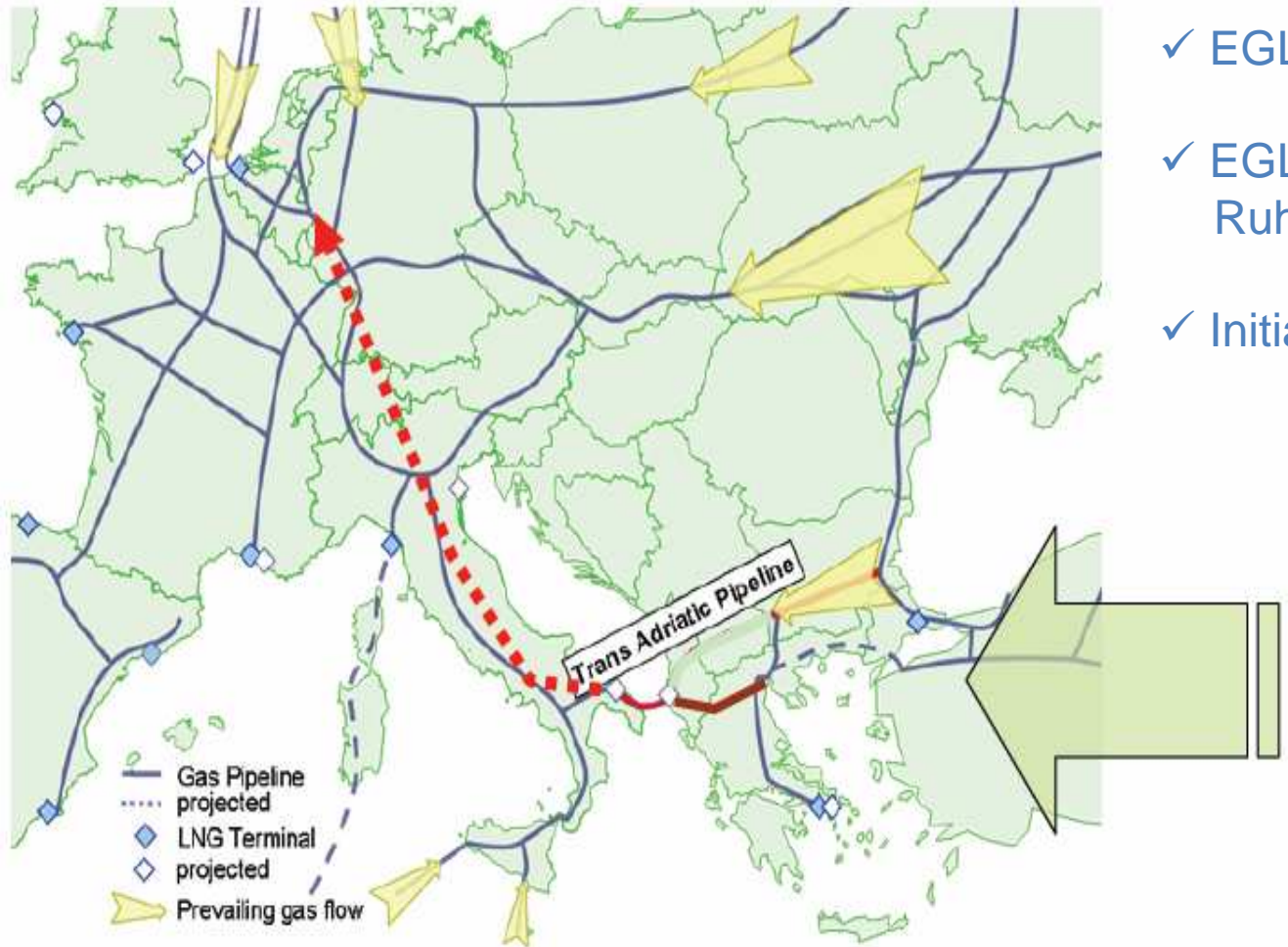


- GERMAN RWE HAS BEEN THE 6TH PROJECT PARTNER ON FEBRUARY 5TH, 2008
- THE NABUCCO INTERGOVERNMENTAL AGREEMENT (IGA) WAS SIGNED IN ANKARA IN 2009
- NABUCCO TO START OPERATION BY 2014

## **TECHNICAL FEATURES**

Total Length	3300 Km
Pipeline Dia.	42-56 Inch
Max.Capacity	31 bcma

## Trans-Adriatic Pipeline Project

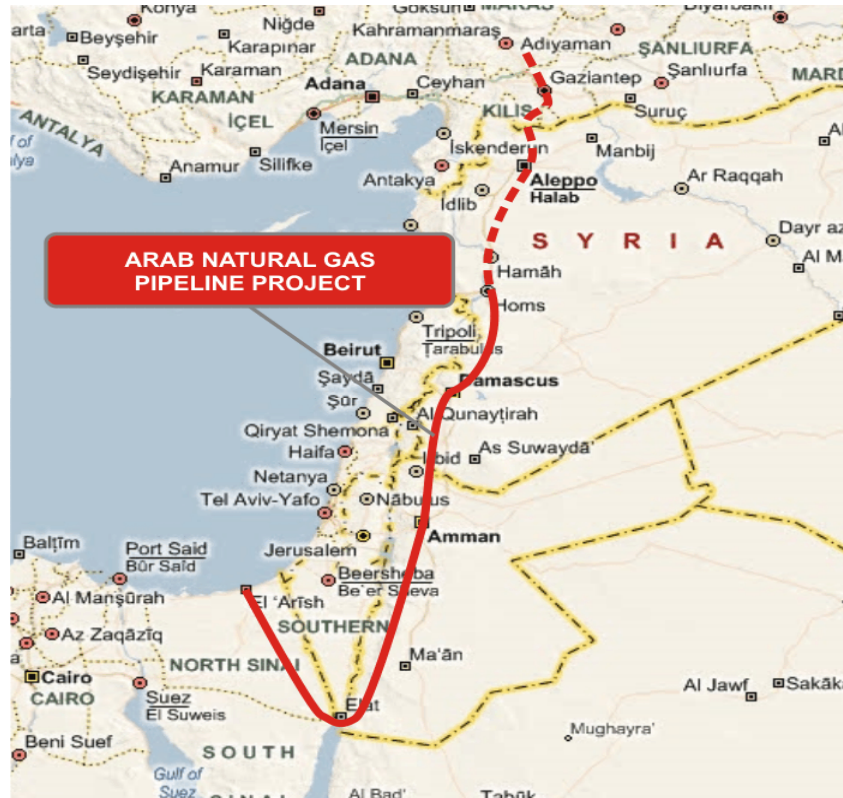


- ✓ EGL Proposal
- ✓ EGL, StatoilHydro & EoN Ruhrgas Partnership
- ✓ Initial: 5.5 BCM





# ARAB GAS PIPELINE PROJECT



- THE EGYPTIAN GAS IS CURRENTLY BEING SUPPLIED TO SYRIA
- A MoU WAS SIGNED ON FEBRUARY 16, 2006 BETWEEN TURKEY AND EGYPT
- RELATED IGA HAS NOT BEEN SIGNED BETWEEN TURKEY AND EGYPT SO FAR
- TURKEY AND SYRIA SIGNED MoU's (dated 20 August 2009, and 23 December 2009) REGARDING INTERCONNECTION OF NATURAL GAS GRIDS OF TWO COUNTRIES.
- TURKISH AND SYRIAN GRID INTERCONNECTION BY LATE 2010

## **TECHNICAL FEATURES**

Total Length	1200 Km
Pipeline Dia.	36 Inch
Max.Capacity	10 bcma

## IRAQ – TURKEY NATURAL GAS PIPELINE PROJECT



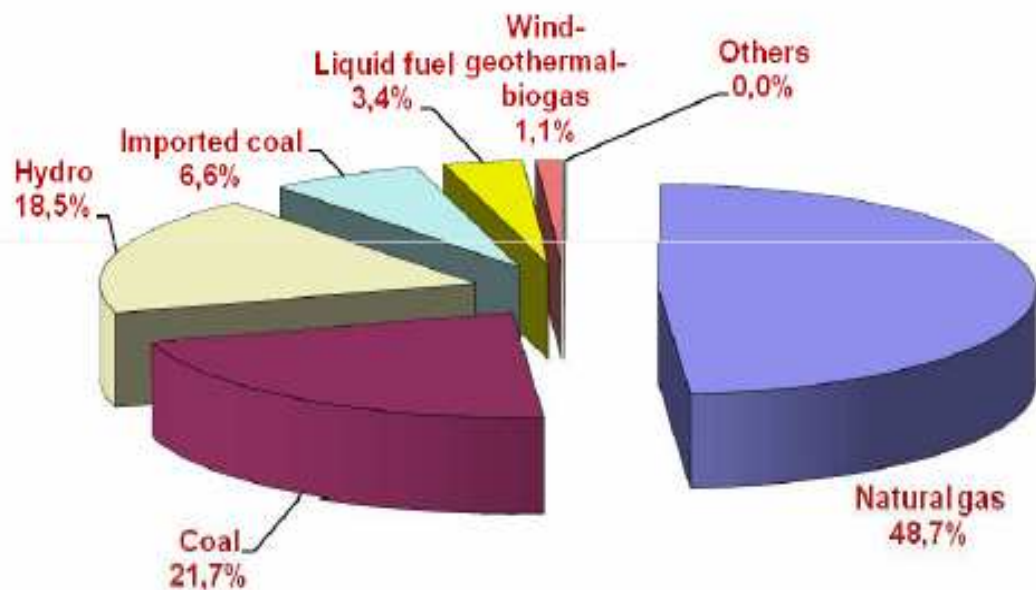
Have great potential in enhancing both Turkey's and EU's energy security



# Electricity Market by figures 2009

## Breakdown of electricity generation by resources

	TWh
Natural Gas	94,46
Coal	42,18
Hydraulic	35,87
Imported Coal	12,79
Liquid fuel	6,6
Wind-geo- biogas	1,1
Others	0,04
<b>TOTAL</b>	<b>194,1</b>

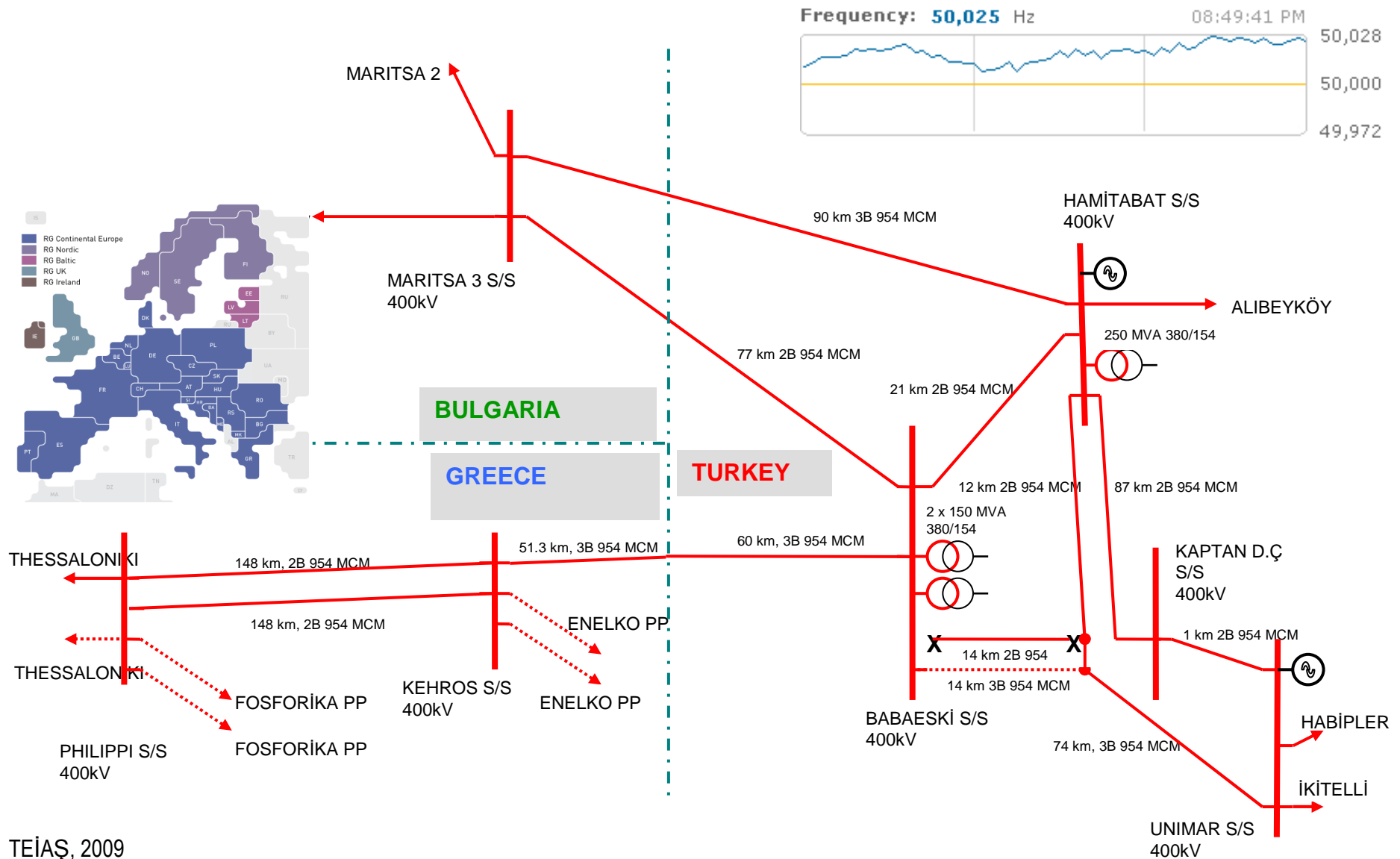


# ELECTRICITY INTERCONNECTIONS OF TURKEY



# EN-TSO Membership

## “Physical Integration with the European Electricity System”



# TURKEY: Energy Corridor and Terminal

